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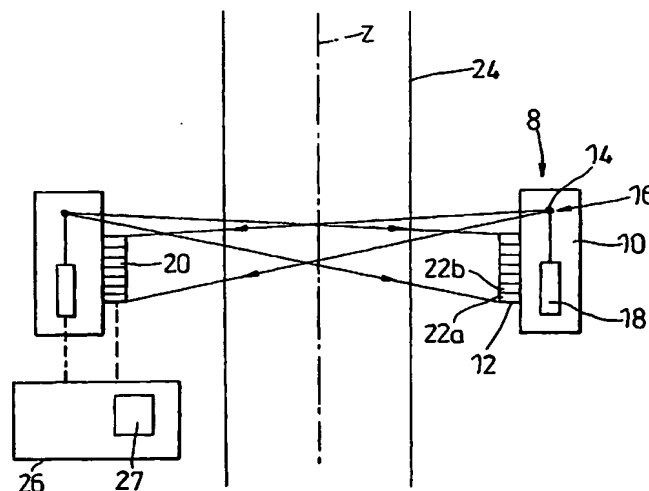
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- (54) Title: X-RAY MONITORING**



- (57) Abstract:** Apparatus for monitoring in real time the movement of a plurality of substances in a mixture, such as oil water and air flowing through a pipe (24), comprises an X-ray scanner (8) arranged to make a plurality of scans of the mixture over a monitoring period to produce a plurality of scan data sets, and control means (26) arranged to analyse the data sets to identify volumes of each of the substances and to measure their movement. By identifying volumes of each of the substances in each of a number of layers and for each of a number of scans, real time analysis and imaging of the substance can be achieved.